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APPLICANT : SUMITOMO METAL IND LTD;

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TITLE : FREE-CUTTING STEEL

ABSTRACT : PROBLEM TO BE SOLVED: To provide an inexpensive nonleaded free-cutting steel having machinability equal to that of a free-cutting leaded resulfurized steel.

SOLUTION: This free-cutting steel has a composition which consists of, by weight, 0.05-0.30% C, $\leq 0.10\%$ Si, 0.85-2.00% Mn, 0.020-0.20% P, > 0.50 -0.80% S, 0.0030-0.0200% N, 0.0050-0.0350% O(oxygen), $\leq 0.30\%$ Cu, $\leq 0.30\%$ Ni, $\leq 1.5\%$ Cr, $\leq 0.2\%$ Mo, $\leq 0.10\%$ Al, $\leq 0.50\%$ Bi, $\leq 0.10\%$ Te, $\leq 0.05\%$ Ca, $\leq 1.00\%$ Ti, $\leq 0.50\%$ V, $\leq 0.0050\%$ B, and the balance Fe with inevitable impurities and in which the value of Mn(%) / S(%) is regulated to ≥ 1.70 .

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